THE WEST INDIAN SPECIES OF *CEROPLASTES.*

By T. D. A. Cockerell.

The Coccid genus *Ceroplastes*, Gray, consists of fourteen described species, of which one is European, one Egyptian, one South African, one from Réunion, one East Indian, one Australian, and the rest American. It is best developed in the neotropical region, although two species occur in Florida, and one of them in Louisiana; as well as a reputed new species in Alabama, and another new species (*C. artemisiæ*, Riley MS., *nec* Rossi) in New Mexico.*

The West Indian species, if we include some new ones, are eight in number, as at present known, and may be ranged in four groups.

Group 1.

Ceroplastes cassiæ, Chavannes, 1848.

Mr. C. A. Barber sent me specimens of a very fine species, which he had found on *Bursera gummifera* at Antigua. At first I thought the insect was undescribed, but on further examination it does not seem distinct from *C. cassiæ*, which was described from Brazil. The scales are large, about 5 mm. long, excluding the spine, somewhat shiny, red-brown in colour, but partly or entirely covered with yellowish white secretion. The wax is thick, and, at least in the adult, there are no distinct lateral plates. Several specimens are often more or less massed together. The caudal horn or spine is stout and very distinct.

C. fairmairei, Targ., 1868, from Montivideo, belongs to the same group, but is not known from the W. Indies.

Group 2.

Ceroplastes floridensis, Comstock, 1881.

There is a large *Ficus* in the back yard of the Museum in Kingston, Jamaica, on which this species abounds. It is not found in masses, or gregarious, but occurs most often singly on the upper side of a leaf, either at the distal end of the leaf-stalk or somewhere on the midrib.

It is noteworthy that in many examples of *C. floridensis* the white secretion of the central plate is not in the centre of it, as in other species, but placed to one side. This character, however, is not invariable, and it may be due to parasites. Although I have reared no parasites from the Jamaican *C. floridensis*, many specimens show holes where they have escaped. A single specimen on *Adiantum*, either *C. floridensis* or closely allied, also shows the middle nucleus of secretion placed quite to one side.

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* See 'Amer. Nat.,' May, 1881; 'Insect Life,' vol. iii. p. 398; Howard, 'Descr. N. Amer. Chalcididæ,' 1885, p. 18.

The *Adiantum* scale is referred only with doubt to *floridensis*, because it seems probable that we have a second species of this group in Jamaica, living on ferns. On February 20th, 1892, Dr. H. Strachan gave me some scales found in Kingston on a tree fern. Of these I noted: length 4, breadth 3, height 2½ mill.; colour pale grey, juveniles white. The shape suggests *cirripediformis*, but the apex white, not ringed with dark. This is surely the same insect as that doubtfully referred to *C. vinsoni* in 'Timehri,' Dec. 1889, p. 312, found in British Guiana on ferns. I do not think it is *C. vinsoni*, but will not venture to describe it as a new species.

Group 3.

Ceroplastes cirripediformis, Comstock, 1881.

I found many specimens of this on *Solanum* in Kingston, Jamaica; always on the stems, never on the leaves. The *Solanum* is a large species, with edible fruit, known as soushumber. Mr. Barber sent me a young specimen found on *Eranthemum* at Antigua, which seemed in all things identical with *cirripediformis*.

C. psidii, Chav., and *C. janeirensis*, Gray, are two supposed species from Brazil. Judging from the published figures and descriptions, they are hardly to be separated, as Signoret surmises. They are also evidently very close to *C. cirripediformis*.

Ceroplastes jamaicensis, A. White, 1846.

Found by Gosse at Basin-Spring, Jamaica, and quite insufficiently described by White. So far as the description goes, it indicates a species very similar to *C. cirripediformis* and *C. psidii*.

Ceroplastes depressus, n. sp.

♀ Scale: long. 5, lat. about 5, alt. 2 mm.

Near to *cirripediformis*, but flatter, larger, and circular, or nearly so; one end more or less truncate. Central area oval, dark purplish brown, with an apparent minute white point, due to a white light on a shiny surface. After this, proceeding outwards, a ring of whitish or dull white, and then an obscure purplish ring, from which radiate purplish lines (2 each side, and 2 at one end) on a greyish ground. Chalky white marks round the margin obscure. Under side dark red.

Found by Mrs. E. M. Swainson at Kingston, Jamaica, under the bark of a *lignum-vitæ* tree, June 2nd, 1892, in company with *Icerya rosæ*, R. & H. From it I bred a parasite, kindly identified for me, by Mr. L. O. Howard, as *Comys albicoxa*, Ashmead.

Further specimens, of various ages, are needed to complete the description; but the shape and external characters will sufficiently indicate the species. It is evidently a derivative of the *psidii*-group, adapted for living under bark.

Ceroplastes plumbaginis, n. sp.

Antigua; on *Plumbago capensis* (C. A. Barber).

Egg.—Elongate-oval, pale pink.

Newly-hatched larva.—Caudal filaments long, nearly as long as body, curved, with the convexity outwards, so that they cross one another. Claw with large curved digitules, and tarsus with the usual two clubbed hairs rather strong and thick. The legs bear a few very strong bristles, the largest being apparently on the trochanter. Segmentation distinct. Antennæ with last joint emitting some long hairs, the last of which is at least as long as the whole antenna.

The young larva of *cirripediformis* is said, by Comstock, to be "very slender, dark brown," whereas this larva is yellowish, and broad, with about the outline of *Lecanium hesperidum*. Internal to each caudal filament is a short hair or bristle; these are called by Comstock, in his description of *C. floridensis*, the bristles of the caudal lobes.

Larva.—Has thirteen lateral tufts in all; whereas *cirripediformis* is stated by Comstock to have fifteen.

Adult ♀.—Much resembles *cirripediformis* in appearance, but is unusually high. Length 4, lat. 3, alt. 3 mm. Colour much like *cirripediformis*, summit with a light dorsal patch (the dorsal patch of larva) very small, and surrounded by dark colour. This again broadly surrounded with whitish, and outside this a dark reddish ring (in some specimens obsolete). This dark ring is due to the thinness or absence of the wax at this point. The lateral plates are distinct, and near their lower edges are some conspicuous patches of chalky white secretion. There are two lateral plates on each side, each with its central tubercle, and one at each end, making six in all. However, the anal plate is evidently two joined together, as Comstock remarks of *cirripediformis*. The pink eggs are conspicuous underneath the female.

This species, like others of the same group, lives upon the twigs and branches, not upon the leaves.

When the specimens arrived from Antigua, I found among them a small Coccinellid beetle, which Mr. Schwarz has kindly identified for me as *Scymnus ochroderus* var. *cyanipennis*, Muls. No doubt it is predaceous upon the *Ceroplastes*.

Ceroplastes denudatus, n. sp.

Antigua; on Sour Sop (*Anona muricata*). Collected by Mr. C. A. Barber.

Abundant, clustered on the twigs like *Lecanium hemisphœricum*, which it resembles closely. Very few on leaves, and these on the under side, mostly at base. The size and shape of the scales are like *L. hemisphœricum*, and in age they become almost entirely bare of wax, and resemble in colour the paler specimens of *hemisphœricum*. The length of a scale is one-eighth of an inch.

The old *hemisphœricum*-like scales are, however, seen to have at the summit the elongate whitish patch of *Ceroplastes*, and some bright white patches remain round the margin. The scales which have not lost the wax are dull pinkish white, with the dorsal patch broadly margined with brown-pink; and the lateral plates, somewhat broader than long, with their central white patches or knobs similarly margined.

The species is allied to *cirripediformis*. It might be confounded with *janeirensis*, but it is smaller than that scale.

The specimens sent from Antigua were badly attacked by the larvæ of some moth, probably a *Phycid*, so that many of their characters could not easily be made out.

Group 4.

Ceroplastes utilis, n. sp.

Island of Grand Turk. Collected by Dr. H. Strachan.

On a tree or bush not identified, with brownish grey bark, and small entire or slightly crenate leaves with oblique bases. On a branch, 4 mm. diam., is a mass of white wax surrounding it, with a diam. of about 1 cm. The mass is about 28 cm. long. This is composed of Coccids, embedded in wax: one (with its wax), separated from the mass, is about 7 mill. long, 5 broad, and 4 high. Beneath, the insect itself appears dark brown, and is about 4 mill. long, oval in outline. Above, there is a depression in the wax, in the middle of which can be seen a small narrow-oval tubercle, corresponding to the central tubercle of other species of the genus. When the wax is removed the insect is dark brown, convex, about the shape of *C. cirripediformis*, except that the apex is raised and pointed, and the lateral knobs are inclined to be likewise, especially at one extremity. Seen by transmitted light the scale is blood-red, becoming yellow on the sides. Boiled in soda they turn it madder-pink, and the wax is deposited on the sides of the test-tube. The young, as seen deposited in this wax, are nearly colourless or pale brown, with dark brown legs and posterior cleft. They are oval in outline, and resemble the young of *Lecanium*. The posterior cleft is very distinct and wide. A very long hair arises from the last joint of the antennæ. The legs and antennæ extend considerably beyond the margin of the body. The edges of the posterior cleft emit two long filaments, which slightly diverge from one another. There is a rather short caudal stylus. Mouth parts distinct; rostral filaments not extending to end of body. Second pair of legs nearer to third pair than to first. Claws with knobbed digitules. Antennæ apparently of six joints; third longest, then sixth; second not longer than fourth.

Adult female shiny, sides strongly wrinkled; apparently no legs or antennæ.

If this species could be obtained in abundance, the wax might be of commercial value. *C. ceriferus*, Anders., which apparently produces much less wax, has been utilised, the product being known as "Indian White Wax."*

Institute of Jamaica, Kingston, Jamaica, Dec. 9, 1892.

THE CYANIDE-REACTION WITH YELLOW LEPIDOPTERA.

By F. H. Perry Coste, B.Sc. (Lond.), F.C.S., F.L.S.

(Continued from p. 5.)

IV.—Effect of other Potassium and of Sodium Salts.

Now, although I had from the first attributed the cyanide-reaction, produced by KCN, to the cyanogen radicle in that compound, yet it might have been legitimately objected that at least

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* See Spon's Encycl., vol. ii. (1882), p. 2045.